



Alternative Land Use Services
“Growing a Healthier Environment”



TALLGRASS PRAIRIE GUIDE 2015

ALUS.CA

ALUS is generously supported by
THE W. GARFIELD WESTON
FOUNDATION

What is a Tallgrass Prairie?

A Tallgrass Prairie is a diverse open landscape native to Norfolk County that is bursting with life. Prairies are dominated by flowering plants called forbs and heat loving warm season perennial grasses, some of which grow up to 2.5m tall during the late spring and summer months. The prairie landscape is an early successional habitat which has traditionally thrived on the presence of fire. The grasses are not harmed due to their extensive and durable root system that extends up to 4m under the ground, adding organic matter to the soil as the roots break down. Prairies also make excellent habitat for a variety of species and have many ecological benefits.

ALUS & Tallgrass Prairie

The Tallgrass Prairie is a part of Ontario's natural and cultural heritage, and needs our protection. Today, less than 1% of Ontario's original Tallgrass Prairie remains. The decline of Tallgrass Prairie habitat results in the loss of wildlife that depends on it for food and shelter as well as a variety of other environmental benefits. ALUS Norfolk works to recreate these unique ecosystems on private lands by assisting farmers with the preparation, planting, and maintenance of Tallgrass Prairie plants.

Benefits

Benefits of planting a Tallgrass Prairie include:

- They support a variety of species by providing habitat for wildlife such as pollinating insects, birds, small mammals, and game animals like wild turkey and white-tailed deer
- Reduces wind and water erosion and runoff
- Thrives on nutrient poor soil
- Aesthetically pleasing with a diversity of colour and plant life
- Low maintenance once established
- Plants are drought tolerant
- The deep root systems of prairie plants hold together soil, increases soil organic matter and improves water infiltration
- Clumped warm season grasses make ideal habitat for 2/3 of our native bees which are solitary and nest on bare ground
- Flowering plants attract pollinators and provide nectar from spring to fall
- Healthy prairies make great neighbours to agricultural fields because they are typically not invasive
- Planting Tallgrass prairie supports an otherwise declining ecosystem in Canada

To learn more about the benefits of the Tallgrass Prairie landscape visit:
tallgrassontario.org/grassland_benefits.html

History

Tallgrass Prairie once thrived in Southern Ontario, but has now become one of the most altered ecosystems due to human impact. Prior to European settlement, fire and grazing created and maintained a grass dominated refuge abundant with wildlife. European settlers were drawn to these open treeless landscapes because they were the easiest to work and extremely fertile. The settlers introduced exotic species that displaced native plants and eliminated the natural disturbances from fire and grazing. Without them, many prairies became overrun by exotic species or converted to farm land or forests. Modern urban development has resulted in further loss and existing prairie remnants face continual stress from surrounding land uses. Today ALUS Norfolk works to reintroduce this rare ecosystem on private marginal agricultural lands so we can continue to enjoy their many benefits.



ALUS participant, Anita Buehner, displaying the heights of her Tallgrass prairie site



Pollinator species enjoying native Smooth oxeye on an ALUS Norfolk site.

Visit Tallgrass Ontario's website at tallgrassontario.org to learn more about Tallgrass Prairie establishment. You will find information on topics ranging from site preparation and planting to species identification and management, including the detailed "Landowners Guide to Tallgrass Prairie."

What to Expect

An established Tallgrass Prairie requires low maintenance, but special attention is important during site preparation and in the first three to five years of establishment. The following table outlines what to expect by year for a typical ALUS Norfolk Tallgrass Prairie restoration site. Refer to the appropriate sections and contact the ALUS Norfolk Program Coordinator if assistance is needed.

Year	What to expect	Objective	Maintenance
YEAR ZERO	<ul style="list-style-type: none"> Your site will require varying degrees of site preparation to get it ready for planting the prairie. Undesirable plant seeds may be lying dormant in the soil. This is known as a seed bank and may require a combination of methods and several rounds of weed removal over one or more growing seasons to control the weeds. 	<ul style="list-style-type: none"> Remove all existing vegetation- unless it is a remnant prairie site. Prepare a smooth firm seed bed to increase germination rates. Eliminate the seed bank as much as possible. Get your prairie seeded! 	<ul style="list-style-type: none"> Perform site preparation to be ready for the spring or late fall for seeding.
YEAR ONE	<ul style="list-style-type: none"> Prairie seedlings will be concentrating their energy into root growth. Annual weeds are most likely present and may be the only thing you see. Increased wildlife activity. 	<ul style="list-style-type: none"> Control vegetation that will compete with the new prairie planting for nutrients, water, and sunlight. Perform maintenance before weeds or other undesirable plants go to seed or shade out your prairie planting. Stimulate prairie plant growth. 	<ul style="list-style-type: none"> Perform general maintenance (burn or mow prior to weed seed set). Apply chemical controls, if necessary, on the entire site to reduce competition before prairie plants begin to grow in the spring.
YEAR TWO+	<ul style="list-style-type: none"> Prairie plants will begin to exert more energy to grow above ground. Many prairie perennials will become established and may bloom. Annual weeds should be reduced compared to year 1 if you maintained your prairie. Your prairie site will become habitat for a variety of species. 	<ul style="list-style-type: none"> Continue monitoring for woody encroachment and other invasive species. If needed, perform maintenance before undesirable plants go to seed. 	<ul style="list-style-type: none"> Do nothing (only if there is no pressure from undesirable species). Perform general maintenance (burn or mow prior to seed set). Use a method from 'Eliminating Unwanted Plants' if you are having problems with non-native, invasive plants or woody stems.



A Tallgrass Prairie site on marginal land adjacent to an agricultural crop.

Many methods to remove unwanted vegetation involve the use of herbicides. When handling any herbicide be sure to follow all package directions, safety precautions, and restrictions. Always consult the ALUS Norfolk Program Coordinator to ensure you are using the right product to do the job.

ALUS Norfolk Prairie Site Preparation

This step is critical to the success of a prairie planting in the first few years of establishment. When done correctly, it will save you time, energy, and frustration. Site preparation varies significantly depending on the soil, past cropping, weed control and current vegetation. When preparing your prairie site for planting there are two main objectives, and how well you address them will determine the success of your project. The first priority is to eliminate any non-native or aggressive vegetation that will grow and compete with new prairie plants for nutrients, space, water, and sunlight. The second is to create optimum seed-to-soil contact by developing a smooth, firm seedbed, which increases the germination rates of your seeds. Below are the methods that ALUS Norfolk applies to achieve these objectives. Contact the ALUS Norfolk Program Coordinator before site preparation to ensure you are using the correct method for the site. To learn more about site preparation for establishing a Tallgrass Prairie landscape visit www.tallgrassontario.org/establishing.html.

Options	Description & Guidelines
<p>Chemical Spray Application</p>	<ul style="list-style-type: none"> • Use a Glyphosate based herbicide at the recommended rates to kill unwanted vegetation. • Apply chemicals as needed to the entire site or perform a spot treatment using a backpack sprayer for sites that have a mix of native species you do not want to remove. • Repeat this process in as many applications as needed. <p>*Working the land will disturb the seed bank which is not desirable.</p>
<p>Plant Roundup Ready Soy Beans</p>	<ul style="list-style-type: none"> • Plant your future site with Roundup ready soy beans and perform as many chemical applications as needed using a Glyphosate based herbicide before harvesting. • Complete this the year prior to planting your prairie. <p>*This method does not require tilling and is the easiest to prepare.</p>
<p>Prescribed Burn</p>	<ul style="list-style-type: none"> • There is currently no framework for ALUS to be administering prescribed burns. For information on how to complete a prescribed burn contact Norfolk County's Fire Department for all the current rules and regulations. • Spring burns are recommended. • Visit www.tallgrassontario.org/prescribed_burn_faqs.html to learn more about prescribed burns and the role of fire. <p>*Often used on abandoned fields or those with a large amount of unwanted vegetation.</p>
<p>Mowing</p>	<ul style="list-style-type: none"> • Use a flail mower on a rotary tractor to cut the existing vegetation on the highest mower setting to cut off weed seed heads while leaving as much cover remaining as possible... this also reduces harming of reptiles, amphibians and small mammals living in the prairie. • Mow prior to weed seed set to help reduce the seed bank. • Mow in the early fall if you are targeting woody stems. • Repeated mowing is effective at weakening the root system over time in areas where there are large amounts of invasive plants or woody stems. • Visit www.tallgrassontario.org/mowing.html for more information.
<p>Work the Land (Tilling)</p>	<ul style="list-style-type: none"> • For a smooth seedbed, till your site unless you previously had a row planting there and there is no heavy residue or dense root masses remaining. • Use a field cultivator to break up the soil until there is less than 20% of 'trash' on the surface. <p>*This method can also be used to bring existing vegetation to the surface but will disturb the seed bank.</p>
<p>Pack the Soil</p>	<ul style="list-style-type: none"> • An adult shoe print should not go further than two inches into the soil of the seedbed. • If it does, packing the soil is required to ensure the seed will not be buried too deeply for germination. • Use a culti-packer to pack the soil on the entire site until it meets the guidelines above. <p>*This step is the last to be completed before planting.</p>

Methods For Site Preparation

What Method is Right for Me?

Every planting is unique, and the way each site is prepared for planting will need to be tailored to it. The following are guidelines for a typical planting site in Norfolk County.

**In all cases the prep work should be completed so the site is ready for planting in May or late September.*

Existing Conditions	Choose one or more of the following options for site preparation:	Comments
<p>Cultivated Fields Any row crops such as soy, vegetables, grains, etc.</p>	<ul style="list-style-type: none"> Chemical application to remove weeds. AND/OR Work and pack the soil. 	Soybean residue is the ideal site to plant because it provides a flat, firm, relatively weed-free site.
<p>Cultivated Fields Corn</p>	<ul style="list-style-type: none"> Chemical application or a prescribed burn to remove weeds. AND/OR Work and pack the soil. 	It is ideal to burn in the spring or to disc in the fall before planting to promote stalk decomposition.
<p>Pastures & Grasslands The sites are often dominated by cool season grasses and undesirable vegetation.</p>	<ul style="list-style-type: none"> If the field is smooth, tilling is not required, but complete as many chemical applications as needed. Multiple chemical applications followed by tilling and packing. Plant one crop cycle of round-up ready soy beans. This will allow for chemical applications as needed to prep the site. 	Sites in this condition often require a full year of preparation to ensure all non-native plants and weed seed banks are eliminated.
<p>Non-Maintained Lands (abandoned fields) These sites are often dominated by early successional weeds.</p>	<ul style="list-style-type: none"> Mowing (to remove woody stems) Mowing followed by a chemical application A prescribed burn Multiple chemical applications or spot treatments as required Plant one crop cycle of round-up ready soy beans. This will allow for chemical applications as needed to prep the site. AND Work and pack the land (optional-site dependent) 	Sites in this condition often require a full year of preparation to ensure all non-native plants and weed seed banks are eliminated.
<p>Existing Native Prairie Sites Some indicator species present.</p>	<ul style="list-style-type: none"> Do not alter the site in any way. Contact the ALUS Norfolk Program Coordinator for the most appropriate action. 	These sites are rare and the method of preparation will depend on existing vegetation.



An example of poor site preparation with vegetation remaining on site.



A clean field ready to be planted in Tallgrass Prairie.

ALUS Prairie Maintenance Techniques

The information that follows describes different management techniques that are used by ALUS Norfolk Tallgrass Prairie owners to recreate conditions that have historically maintained the health of Tallgrass Prairie landscapes. These practices encourage the growth of a healthy native prairie stand while controlling or reducing woody, non-native, or invasive plants that threaten to take over. The following methods are used alone or in combination as the circumstance and resources permit. Always contact the ALUS Norfolk Program Coordinator to ensure you are using the most appropriate maintenance method at the right time for your sites conditions.

GENERAL MAINTENANCE

Some regular maintenance is required to maintain the health and vigor of the site and to control non-natives, invasive species and woody stems.

Prescribed Burns

Kills non-native plants, as well as shrubs and trees, which are not meant for a prairie. It also eliminates dead plant material allowing sunlight and water to penetrate the soil, while nutrients from the burn return to the ground.

When

- As a general rule, perform a prescribed burn every 3-5 years.
- Burn in the early spring.

How

- There is currently no framework for ALUS to be administering prescribed burns. If you are interested in having a prescribed burn, contact Norfolk County's fire department to see the current requirements, rules, and regulations.
- Visit www.tallgrassontario.org/prescribed_burn_faqs.html to learn more about prescribed burns. They may be able to provide assistance.

Mowing

Mowing is the next best option for routine maintenance if you cannot perform a prescribed burn. It is used to prevent invasion by trees and shrubs and to control weed pressure.

When

- Perform as needed in year one.
- Once established, mow every 2-5 years to maintain your prairie.
- The ideal mowing time is prior to weed seed heads setting.
 - Each site must be individually monitored.
- Mow after August 1st in order to allow grassland birds to complete nesting and fledge their young.
- Mowing between August 5-10th is ideal for reducing woody invasion.
- Visit www.tallgrassontario.org/mowing.html for more information.

How

- Use a tractor with a rotary implement, cut the site to 6-8 inches of height
- After mowing, all biomass on ALUS prairies that is cut remains on site.
- Consider only mowing a portion of your site to maintain habitat year round.
- If you are targeting a species prone to suckering, repeated mowing may be necessary.



A prescribed burn in action.



A Tallgrass Prairie site after mowing.

Eliminating Unwanted Plants

In addition to regular maintenance the following practices have been used on ALUS Norfolk ALUS Tallgrass Prairie sites to eliminate unwanted species such as non-native plants, weeds, or woody stems and shrubs.

<h2>Chemical Spray Application</h2> <p>Chemical spray application is used when targeting large sites in poor condition and overrun with unwanted weeds.</p>	<p>When</p> <ul style="list-style-type: none">• Spray in early spring while prairie species are still dormant.• Do not use this method on sites with native forbs planted. <p>How</p> <ul style="list-style-type: none">• Apply a selective broadleaf herbicide.
<h2>Chemical Spot Treatment</h2> <p>Spot treatment is used when targeting sites with small patches of unwanted plants or scattered weeds. This method uses chemicals sparingly in comparison to widespread chemical control.</p>	<p>When</p> <ul style="list-style-type: none">• This method can be used any time of year but it is best to apply chemicals in the spring before prairie plants are actively growing.• Be cautious on sites with forbs planted; over seeding may be required. <p>How</p> <ul style="list-style-type: none">• Spray individual weeds or small patches of unwanted plants using a backpack sprayer with a Glyphosate based herbicide.
<h2>Mowing and Chemical Application</h2> <p>This method is used on sites that have been overrun by woody stems and have too many to manage by hand. It involves mowing large portions of the site to weaken stems, followed by chemical control.</p>	<p>When</p> <ul style="list-style-type: none">• Mid to late fall when prairie grasses have gone dormant to avoid harming them.• Do not use this method on sites with forbs planted.• Mowing must be performed after August 1st to allow grassland birds to complete nesting and fledge their young.• Most effective between August 5-10th, to combat woody invasion. <p>How</p> <ul style="list-style-type: none">• A mix of mowing and chemical control (above).
<h2>Hand Removal and Chemical Application (Stump treatment)</h2> <p>This method is used to combat woody encroachment to prevent your prairie from turning into a forest. This is used on sites where you only have individual stems or small areas to treat.</p>	<p>When</p> <ul style="list-style-type: none">• This method can be used any time of year.• Optimal in the late summer (August). <p>How</p> <ul style="list-style-type: none">• Invasive trees or other woody species are cut by hand and then a broad-leaf herbicide is brushed onto the stump immediately.• Depending on species, watch for sucker growth and repeat the herbicide application.• This is only feasible for sites with a limited number of woody stems present as it can be very labour intensive.
<h2>Stem Cutting</h2> <p>This method is used to combat woody encroachment to prevent your prairie from turning into a forest. This is used on sites where you only have individual stems or small areas to treat. It is less effective than the stump treatment but an alternative if you do not want to use herbicides.</p>	<p>When</p> <ul style="list-style-type: none">• This method can be used any time of year but it is most effective in early August. <p>How</p> <ul style="list-style-type: none">• Cut shrubs or trees as low to the ground as possible. Use loppers or a hand saw for small stems and a gas powered brushcutter for larger stems or patches of trees.• If you are targeting a species prone to suckering, repeated cutting may be necessary.• This is only feasible for sites with a limited number of woody stems present as it can be very labour intensive.

Common Challenges

Challenge	Solutions
Regular maintenance	<ul style="list-style-type: none">• Prescribed burn (every 3-5 years)• Mowing (annually from year 1-3 then every 3-5 years)
I have weeds, shrubs, or small trees scattered throughout my site.	<ul style="list-style-type: none">• Prescribed burn (every 3-5 years)• Mowing (annually from year 1-3 then every 3-5 years)
My entire site is covered with weeds.	<ul style="list-style-type: none">• Chemical control
My site has weeds scattered in small patches.	<ul style="list-style-type: none">• Chemical spot treatment
My site is dominated by woody stems.	<ul style="list-style-type: none">• Mowing (repeatedly)• Mowing and chemical control
I have individual woody stems or small patches of them on my site.	<ul style="list-style-type: none">• Stump treatment• Stem cutting
My site lacks prairie species.	<ul style="list-style-type: none">• Overseed - site dependent (contact an ALUS representative)

**Never use a chemical application on sites with forbs planted.*